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BIRDS COLLECTED DURING THE WHITNEY SOUTH SEA EXPEDITION. XXXIX¹

NOTES ON NEW GUINEA BIRDS. IV

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This paper² continues my revisions of New Guinea genera, treating the genera *Megapodius* and *Talegalla* of the family Megapodiidae. The same methods are used as the preceding three installments (see Amer. Mus. Novit., Nos. 915, 939, 947).

MEGAPODIIDAE

NOTES ON THE GENUS *MEGAPODIUS*

Peters introduces this genus in the second volume of his check-list with the statement (footnote): "The genus *Megapodius* is badly in need of revision in order to determine the validity of many of the species and subspecies, their relationships and distribution." The truth of this statement became very evident to me when I attempted to arrange the various forms for my New Guinea Check-list. The opinions of the various authors were so widely diverging that it was necessary to prepare a partial revision of the genus, in order to come to some definite conclusions. The last revision of the genus was that of Ogilvie-Grant in the 'Cat. of Birds,' XXII, pp. 446-461, published in 1893. No subspecies were recognized in this study and even such distinct forms as *tumulus* were not recognized, because "the chain of intermediate forms between the extreme types is complete" [sic!]. Since then a number of discussions on the genus have been published, those of Siebers and Stresemann being the most valuable. During the last years of its existence the Whitney South Sea Expedition has collected an unparalleled series in the Solomon Islands, the Bismarck Archipelago, and in Micronesia. These large series have by no means facilitated my task, but they allow a much firmer basis for my conclusions.

The greatest difficulty, presented by this genus, is the tremendous

¹ Previous papers in this series comprise American Museum Novitates, Nos. 115, 124, 149, 322, 337, 350, 356, 364, 365, 370, 419, 469, 486, 488, 489, 502, 504, 516, 520, 522, 531, 590, 609, 628, 651, 665, 666, 709, 714, 820, 828, 912, 915, 933, 939, 947, 977, and 986.

² Manuscript received by the editor on Feb. 4 1938.

individual variation of color and particularly of size. The differences between adults and immatures are not always well developed and small size of the tarsus is sometimes the only character by which an immature can be told. Bleaching and foxing is another factor which should not be underestimated. Particularly the gray of under parts and uppermost back loses in time its bluish luster and acquires a dull tone.

The habits of these birds provide another difficulty. *Megapodius* is a social bird and is usually found in little clusters or colonies, some of which are widely separated from each other. The result is that we do not have uniform subspecies, but rather conglomerates of slightly different populations. When some of these populations live on small coral islands and others on the mountains of bigger islands, these differences are accentuated by vertical variation (see below, p. 13).

No arrangement of the forms of this genus is quite satisfactory. There is no question that the very different *pritchardii* should be regarded a full species and this is also true to a lesser degree for *laperouse* but all the other forms are quite similar to each other. Most modern authors would not hesitate to regard all of them as subspecies of one species, if there were not one serious difficulty. Two different forms of the species have been reported to live side by side on at least six different localities. Stresemann and Paludan (1932, Novit. Zool., XXXVIII, pp. 245, 246) have therefore suggested to break up the genus into a number of species and this suggestion was adopted by Peters (Check-list, II, pp. 4-6).

It seems to me that such a classification of the forms of this genus creates more difficulties than it removes. Forms which are exactly intermediate between two "species" are arbitrarily placed in one of the two. *M. macgillivrayi* is placed as subspecies of *reinwardt*, because it is also red-legged, although it agrees in all of its other characters (general coloration, bare forehead) much better with *eremita*. In the hybrid population of Dampier Island (between *affinis* and *eremita*) some specimens occur which happen to have the same combination of characters as it also occurs in *forsteni* from the Moluccas.

The uniformly dark gray form *freycinet* has been separated specifically from *reinwardt* even by some of those authors, like Hartert (1901, Novit. Zool., VIII, p. 138), who considered *affinis* and *eremita* as conspecific with *reinwardt*. But even *freycinet* is linked with *reinwardt* by an intermediate form, *M. geelvinkianus*. This form shows an approach toward *reinwardt* not only in the posteriorly reddish leg, but also by its brownish-olive greater upper wing-coverts and secondaries. A speci-

men described by Salvadori (*i*, p. 228, 'Orn. Pap. Mol.,' III) seems to be a hybrid between *geelvinkianus* and *affinis*.

This discussion will be sufficient to prove my point that there are no morphological characters that can be used to split the megapodes of the Papuan Region into several species, on the contrary, even the most different forms are connected by intermediates.

Now let us examine the argument of the coexistence of several forms at one locality. While we discuss the details we must keep one point in mind. There are considerable ecological differences between the various races, particularly in Geelvink Bay. Some of the races are restricted to the smaller coral islands, others to the larger continental islands, like Jobi. We have here exactly the same phenomenon as discussed by me under *Ptilinopus rivoli* in a recent paper (Amer. Mus. Novit., No. 947, p. 1).

One further difficulty is provided by the habit of the species to undertake extensive roosting flights in the evening from the mainland to small islands off the coast, as it has been observed by me in several places in New Guinea and in the Solomon Islands. It is thus possible that one might collect two forms on these small islands although only one of them is a breeder.

The following cases of coexistence of two forms of the genus *Megapodius* at one locality have been quoted in the literature.

1.—South New Guinea (Ibis, Suppl. II, 1915, p. 319). The actual facts are that the B. O. U. Expedition collected two specimens of *affinis* at the upper Utkwa River (2900 ft. and 4200 ft.) and 18 specimens of *duperryi* at the lower ranges of the Mimika, Kapare, Wataikwa, and Setekwa rivers. There is no evidence that the two forms live side by side without mixing. It seems as if *affinis* was at this locality the altitudinal representative of *duperryi*.

2.—Western Papuan Islands (Salvadori, 'Orn. Pap. Mol.,' III, pp. 220-224, 230-234).

The resident race of these islands is *freycinet*. There is, however, one record of *duperryi*. One ♀ from Batanta (June, 1875), collected by Bruijn, while all other eight birds collected on Batanta and Salawati belong to *freycinet*. It is exceedingly unlikely that specimens of *duperryi* nest on Batanta, this unique specimen was probably a straggler, if the locality is correct, which is always open to doubt with Bruijn skins.

3.—Vogelkop and off-lying small islands.

The bird of the mainland is *duperryi* and that of the off-lying small islands *freycinet*, as has been stated by Beccari (Salvadori, *op. cit.*, p. 234). This explains why Beccari found *duperryi* at Dorei Hum and *freycinet* at Pulu Hum and why both forms have been found at Sorong. As Siebers (Treubia, VII, Suppl., pp. 32-33) has already explained, it is probable that the *freycinet* specimens were collected on

the island Sorong proper and other small islands of the vicinity and the specimens of *duperryi* on the nearby mainland.

4.—Dorey.

The common form of the vicinity of Manokwari (= Dorey) is *duperryi*, but von Rosenberg collected a specimen of *geelvinkianus* at Dorey on January 12, 1869 (see Schlegel, Musée Pays-Bas, VIII, p. 63). Whether this locality is wrong (von Rosenberg frequently made mistakes in his labelling) or whether the specimen was collected on one of the islands of the Bay of Dorey (such as Mansinam) or whether this is a straggler, is unknown, but there is no reliable evidence that *geelvinkianus* nests on the mainland. Not one of the numerous recent collectors has found it on the Vogelkop.

5.—Jobi.

The common form of the mainland of Jobi is *affinis*. This is the form collected by von Rosenberg (♂, ♀, April, May, 1860), by Beccari (1 ♂, Nov. 23, 1875), by Bruijn (6 specimens examined) and by Doherty (2 ♂, 1 ♀, Ansum and 1 ♀, Marai). But several authors also report *geelvinkianus* from Jobi. A. B. Meyer reports a young megapode from Ansum, Jobi, which shows no subspecific character because it is still in the juvenile plumage, but of which he assumed that it belongs to *geelvinkianus*, because he found this form on the other islands of Geelvink Bay (Numfor and Biak). In the light of our present knowledge it is more than probable that this specimen belongs to *affinis*. Aside from Meyer's "record," the occurrence of *geelvinkianus* on Jobi is based on two specimens (Salvadori, *h* and *i*) which were collected by Bruijn, and one of which is not even a typical specimen of *geelvinkianus*, but apparently intermediate between *geelvinkianus* and *affinis*. Bruijn is also the only collector who reports *Ptilinopus prasinorrhous* and *Cinnyris salvadorii* from Jobi, while all the other collectors obtained *Ptilinopus miqueli* and *Cinnyris sericea*, in all three cases producing great taxonomic difficulties. I am convinced that neither *Megapodius geelvinkianus*, nor *Ptilinopus prasinorrhous*, nor *Cinnyris salvadorii* was ever collected on Jobi, but that Bruijn obtained these species on some of the small islands off the coast of Jobi. There is no reason to change our whole system of the genus *Megapodius* just for some doubtful records of Bruijn. He was working mainly through Malayan and Arab collectors, who have reported many wrong localities, as has been pointed out by Salvadori again and again.

6.—Moroka district.

The Rothschild Collection possesses one specimen of *Megapodius affinis*, described by Hartert (1901, Novit. Zool., VIII, p. 136) under *duperryi* which was said to have come from the Moroka district in southeast New Guinea. The specimen is without an original label and was purchased by Lord Rothschild from a London dealer. The bird agrees perfectly with a series from the Mambare River and there is no doubt that it did not come from the locality given on the label. All the (large!) collections that have been made in recent years along the south coast of southeast New Guinea (lowland and mountains) contained only red-legged *duperryi*.

Summarizing all this evidence it can be said that there is no reliable evidence in existence to prove that two forms of *Megapodius* occur in exactly the same locality, without mixing. The fact that the most di-

vergent forms, such as *reinwardt*, *freycinet*, and *eremita* are connected by intermediates makes it necessary to consider them all subspecies of one species. Historical developments have brought about the phenomenon that forms that have evolved in very different directions are now again close neighbors, as for example on the west coast of the Vogelkop, at the head of Geelvink Bay, and on the islands of Geelvink Bay, but the physiological divergence has nowhere proceeded to the point that these forms act like good species where they meet.

In fact the best proof for the assumption that all these forms are conspecific is furnished by the population of Dampier Island where the two very different forms *affinis* and *eremita* meet. These two forms do not live side by side as good species, but on the contrary they mix completely and form a hybrid population, as described below, p. 11.

The scope of this present series of papers is limited to revisions of Papuan birds. I shall therefore refrain from treating the western *nicobariensis* and *tenimberensis*, and the eastern *layardi*, all of which seem to be subspecies of *freycinet*. *M. laperouse* from Micronesia may be considered a separate species and *M. pritchardii* is unquestionably a good species.

Megapodius freycinet reinwardt Dumont

Megapodius Reinwardt DUMONT, 1823 (Dec. 27), Dict. Sci. Nat. (Levrault), XXIX, p. 416.—“Amboyna,” error for Lombok (see Schlegel, 1880, Mus. Pays-Bas, VIII, p. 57).

Megapodius rubripes TEMMINCK, 1826, ‘Pl. Col.’ livr. 69, Pl. 411.—Based on the same specimen.

Megapodius gouldii GRAY, 1861, Proc. Zool. Soc. London, p. 290.—Lombok.

Megapodius amboinensis GRAY, 1861, Proc. Zool. Soc. London, p. 293.—“Amboyna,” error for Banda.

A pale form; under parts of a pale gray, which has a brownish tinge; flanks inconspicuously rufous brown mixed with gray; crest on head not very elongated (medium); crown and crest of a light brown, frequently with a distinct olivaceous tinge; back light olive-brown; on some islands specimens with a rufous back occur; wing-bend without gray; tail brown; legs yellowish red; forehead fairly well feathered; size medium.

RANGE.—Lesser Sunda Islands to Key Islands.

The above given diagnosis applies to this race only in a general way. The subspecies is really composed of a series of slightly different populations. To show the width of geographical variation within the *reinwardt* complex I shall give a detailed description of the birds from the various islands.

KANGEAN.—Very small, two probably immature birds, wing 206, 215, one certainly adult: 223 (♀).

LOMBOK AND FLORES.—Agree with the subspecies diagnosis. Wing, ♂ 227, 234, 235, 242, ♀ 238, 238.

SUMBAWA.—A single bird (♂ 227) is rather brownish.

DJAMPEA GROUP (Djampea, Madoe, Kalaotua).—In coloration and size like Lombok birds. Wing, ♂ 233, 242, ♀ 237, 238. Tarsus, 62, 62, 63, 68.

ALOR, WETTER, ROMA.—Like Lombok birds.

Alor, wing, ♀ 238, ♂ 228.

Wetter, wing, ♀ 243

Roma, wing, ♂ 221, 244, ♀ 240, 245; tarsus, ♂ 63, 65, ♀ 59, 59.

DAMAR.—Average somewhat more rufous, ♂ 234, ♀ 232.

BABBER.—Average larger, darker, and more brownish. Wing, ♂ 245, 247, 247, ♀ 234. Tarsus, ♂ 65, 66, 69, ♀ 63.

SUMBA.—Very large, dark, and brownish. Wing, ♂ 243, 252, 253, 253; tarsus, ♂ 64, 66, 67, 69.

These specimens with their long brown crests, dark gray under parts and dark mantle are really closer to *duperryi* than to *reinwardt*. Two specimens collected recently (Stein, 1932) are more olivaceous, the two others collected by Everett 40 years ago are very rufous brown.

GREATER BANDA.—Small and quite rufous brown, but rather dark. Wing, ♂ 232, ♀ 226, 231; tarsus, ♂ 67, ♀ 63, 65.

KEY ISLANDS.—Small and rather olivaceous. Wing, ♀ 215, 226, 226, 229; tarsus, 61, 64, 64, 64.

SOUTHEAST ISLANDS (Koer, Kisoei, Kilsoein, Teoor).—Small, olivaceous, with a slight rufous tinge. One bird from Kilsoein and one from Teoor quite rufous.

Wing, ♂ 219, 220, 222, 223, 225, 227, ♀ 225, 225, 227, 232; tarsus, ♂ 61, 63, 65, 66, 67, 68, ♀ 62, 64, 65, 66.

***Megapodius freycinet duperryi* Lesson and Garnot**

Megapodius duperryi LESSON AND GARNOT, 1826, Bull. Sci. Nat., VIII, p. 113.—Dorey, northwest New Guinea.

A medium-sized, rather dark form; under parts of a dark gray with a distinct bluish tinge; flanks more or less mixed with chestnut; crest very elongated; crown and crest dark brown, rarely with a rufous or olivaceous tinge; back very variable, most often dark olive brown with a distinct chestnut tinge; exceptional specimens are pure olive-brown or pure rufous brown; wing-bend without gray; tail and wing-feathers blackish brown; legs yellowish red (salmon-colored); forehead, upper throat, and sides of face well feathered.

RANGE.—West and south New Guinea, extending on the north coast as far east as the Wandammen district, then along the entire south coast, and extending westward along the north coast of southeast New Guinea as far as the Hydrographer Mts. and the Kumusi River.

WING LENGTH.—Arfak Peninsula, ♂ 234, 242, 242, 243, 251, ♀ 233, 236, 240; 243, 243; lower Snow Mts., ♂ 220, ♀ 215; Fly River, ♂ 223-242, ♀ 228-244, south coast of southeast New Guinea, ♂ 232, 233, 235, 236, 236, 241, 242, 243, 246, 247, ♀ 235, 246; north coast of southeast New Guinea, ♂ 242, 250, ♀ 233, 234, 241.

This is by no means a very distinct race, particularly in view of the great variation of *reinwardt*. The darkness and more chestnut color of the New Guinea birds is, however, quite evident if series are compared, and is true even for the old specimens collected by Bruijn and Beccari more than 60 years ago.

The distribution of *duperryi* is very curious. It is principally a low-land bird and it is represented in the mountains by *affinis* at two widely distant localities. One is the foothills of the Snow Mts., where *duperryi* occurs on the lower Mimika, Kapare, Wataikwa, and Setekwa rivers, and *affinis* on the upper Utakwa River, and the other locality is on the north coast of southeast New Guinea where *duperryi* occurs as far as the lower Kumusi River, while *affinis* was collected at the upper Mambare River. In the latter case it is also possible that the watershed between Kumusi and Mambare forms the border between the two subspecies.

Megapodius freycinet aruensis, new subspecies

TYPE.—No. 538976, Amer. Mus. Nat. Hist. (Rothschild Collection); ♂ ad.; Trangan Is., Aru Islands; September 19, 1900; Heinrich Kühn.

Similar to *reinwardt*, but averaging smaller; crown, crest, mantle, wings, and tail brighter rufous brown; under parts darker gray. Differs from *duperryi* by smaller size and by having wings and tail brighter rufous, not chestnut or blackish brown.

Wing, ♂ 226, 227, 233, ♀ 235, 239; tarsus, ♂ 63, 63, 66, ♀ 66, 66.

This small-sized, bright rufous population is quite distinct from any of the other races. In coloration *aruensis* is most similar to *yorki* Mathews, but it is, of course, much smaller (wing 226–239, against 240–274 in *yorki*; tarsus 63–66, against 65–73). I do not know how it differs from *assimilis* Masters from the islands of Torres Straits because I have seen no material of that form. It is usually regarded as a synonym of *duperryi*.

Megapodius freycinet yorki Mathews

Megapodius reinwardt yorki MATHEWS, 1929, Bull. Brit. Orn. Club, L, p. 11.—Cedar Bay, about 27 miles south of Cooktown, at about 15° 52' south latitude.

A large, light-colored form; under parts rather pale gray; crest long; crown and crest of a clear, bright brown, or rufous brown; uppermost back with a slight olive tinge; mantle and wings bright cinnamon brown with a rufous tinge; rump rufous; tail blackish chestnut; wing-bend without gray; legs reddish yellow; forehead, chin, throat, and sides of head well feathered.

Wing, ♂ 240, 250, 256, 262, 265, 267, 274, ♀ 243, 247, 249, 255, 257, 266; tarsus, ♂ 67–72 (69.6), ♀ 65–73 (68.8).

RANGE.—Cape York Peninsula and northern Queensland as far south as the Cooktown district.

This race was characterized by Hartert in January, 1929 (Novit. Zool., XXXV, p. 43) and named late in the same year by Mathews who practically copied Hartert's description. Although he named the race *yorki* and although there was a large series of Cape York birds available in the Rothschild Collection, Mathews unexpectedly chose as type locality Cedar Bay, which is in the Cooktown district and not on Cape York proper. The two specimens from Cedar Bay are fortunately not intermediate between the Cape York and the Cairns race, but quite typical of the Cape York race. The break between the two races apparently occurs between Cooktown and Cairns as in many other species.

***Megapodius freycinet castanonotus*, new subspecies**

TYPE.—No. 200364, Amer. Mus. Nat. Hist.; ♀ ad.; Babinda Creek, south of Cairns; November 7, 1921; H. C. Raven Coll.

A medium-sized and dark-colored race; under parts dark gray, almost as blackish as in *tumulus*; crest long; crown and crest dark chestnut brown; hind-neck dark gray; mantle, wings, and rump chestnut; wing-bend without gray; tail blackish; legs and feet yellowish; forehead, chin, throat, and sides of head well feathered.

Differs from *tumulus* by its dark chestnut-brown (not olive-brown) back and from *yorki* by its dark coloration and chestnut back.

Wing, ♂ 247, 249, 251, 253, ♀ 230, 244, 256; tarsus, ♂ 65, 68, 68, 69, ♀ 64, 68, 70.

RANGE.—Cairns district in northern Queensland (1 ♀, Babinda Creek; 2 ♂, Mt. Sapphire; 2 ♂, Bellender Ker; 2 ♀, Allumbah; 1 ♀ imm., Bartle Frere).

***Megapodius freycinet tumulus* Gould**

Megapodius tumulus GOULD, 1842, Proc. Zool. Soc. London, p. 20.—Coburg Peninsula.

Megapodius duperryi melvillensis MATHEWS, 1912, 'Austr. Av. Record,' I, p. 26.—Melville Island.

A very large and dark race; under parts of a dark, almost blackish, slate gray; flanks dark grayish brown; crest long; crown and crest dark fuscous brown; hind-neck dark gray; back dark brown with a distinct olive tinge, particularly on the upper back; wing-bend without gray; tail blackish; legs and feet yellowish red; forehead, chin, throat, and sides of head well feathered.

Wing, ♂ (mainland) 277, 278, 280, ♂ (Melville Is.), 252, 256, 262, 269; ♀ (mainland) 270, 276, 282, ♀ (Melville Island) 262, 272.

Tarsus, ♂ (mainland) 71, 72, 72, ♂ (Melville Is.) 71, 72, 72, 72; ♀ (mainland) 70, 70, 72, ♀ (Melville Is.) 67.

RANGE.—Melville Island and coast of Northern Territory (Port Keats, Daly River, Alligator River, Coburg Peninsula).

The measurements listed by me indicate that it might be advisable

to recognize *melvillensis* on the basis of smaller size, if this difference is confirmed by more material.

***Megapodius freycinet macgillivrayi* Gray**

Megapodius macgillivrayi GRAY, 1861, Proc. Zool. Soc. London, p. 289.—Duchateau and Pig islands, Louisiade Archipelago.

A medium-sized and very dark race; under parts of a dark, almost blackish slate gray; flanks with little or no brown; crest medium or short; crown and crest fuscous gray, with a slight brownish tinge; hind-neck dark slate gray; mantle and wings from dark brownish olive to grayish olive; wing-bend with gray; tail blackish; legs yellowish red, feet partly blackish; chin and throat fairly well feathered, forehead and vicinity of eye largely bare and blackish; feet and claws very heavy.

Wing, ♂ 227, 232, 235, 238, 239, 240, 242, 242, 243, 245; ♀ 220, 221, 229, 230, 237, 244, 246. Tarsus, ♂ 64, 65, 66, 67, 67, 69, 69, 72, 72; ♀ 64, 64, 65, 68, 69.—36 adults and 10 immatures examined. Some of the sexing is apparently not correct.

RANGE.—D'Entrecasteaux Archipelago (Fergusson, Goodenough and Dabu Is.); Kiriwina, Trobriand Is.; East Is., Bonvouloir group; Woodlark Island, Woodlark group; Dugumenu, Marshall Bennett Is.; St. Aignan; Sudest Island, Duchateau Island and Pig Island, Sudest group, and Rossel Island in the Louisiades.

Although the birds from the entire range are very dark, there is considerable variation in regard to the chestnut or olive coloration of the back. Most specimens from the D'Entrecasteaux Archipelago have a rufous brown admixture of crown, mantle, and wings. In birds from the Trobriand Islands (Kiriwina) the Marshall Bennett group (Dugumenu), the Bonvouloir group (East Is.), St. Aignan and Sudest Is., the olive coloration prevails, although occasional specimens still have quite a brownish wash. On Rossel Island and particularly on Woodlark Island, the two easternmost islands of either chain of the Louisiades, the darkest and most grayish-olive extreme has developed. The crown is blackish gray without brown or olive; the mantle is dark olive-gray and rump and upper tail-coverts are blackish brown, not chestnut.

The type locality of this form is Duchateau Island west of Sudest, which probably has an intermediate colored population. In view of the central position of the type locality, and in view of the considerable individual variation of the intermediate population, it seems best not to subdivide *M. f. macgillivrayi* Gray. The difference between eastern and western birds is probably due to the fact that the D'Entrecasteaux birds contain some *duperryi* blood and those from eastern islands some *brenchleyi* blood.

Megapodius freycinet affinis A. B. Meyer

Megapodius affinis A. B. MEYER, 1874, Sitzungsber. K. Akad. Wiss. Wien, LXIX, Abt. 1, p. 215.—Rubi, head of Geelvink Bay.

Megapodius decollatus OUSTALET, 1878, Bull. Assoc. Sci. France, XXXI (No. 553), p. 248.—Tarawai (= D'Urville Is. or Kairiru).

Megapodius duperreyi var. *jobiensis* OUSTALET, 1881, Ann. Sci. Nat., Zool. (6) XI, Art. 2, p. 96 (ex Schlegel Ms.).—Jobi Islands.

Megapodius brunneiventris A. B. MEYER, 1891, Abh. Ber. Zool. Mus. Dresden, 1890-1891, No. 4, p. 15.—Astrolabe Bay.

Megapodius reinwardt huonensis STRESEMANN, 1922, Journ. f. Ornith., LXX, p. 408.—Heldsbach Coast, Huon Gulf.

A small-to medium-sized race; under parts ashy gray, flanks, abdomen, and sometimes even the breast washed with brown; crest medium to long; crown and crest rather bright walnut brown, with a slight olive tinge; hind-neck ashy gray; mantle and wings dark olive-brown, usually without any rufous tinge; wing-bend without gray; tail blackish or blackish chestnut; legs and feet dark olive-green; forehead well feathered; chin, throat, and sides of head very sparsely feathered.

Differs from *duperryi* by its dark legs, bright olive-brown and not rufous brown coloration of the upper parts, and by the sparse feathering of the throat.

WING.—Makimi, head of Geelvink Bay (near type locality of *affinis*), ♀ ad., 222; Jobi Island, ♂ 218, 221, 222, 225, 227, ♀ 214, 220, 223, 223, 225; Hol, Humboldt Bay, ♂ 224, 229, ♀ 223. Astrolabe Bay, ♂ 227, 231, 232; Huon Peninsula, ♂ 225, ♀ 214; Bihagi, upper Mambare, ♂ 223, 230, 231, 233, 235; Vulcan Island, some of the birds possibly not adult, ♂ 217, 217, 218, 219, ♀ 219, 220, 233.

RANGE.—North New Guinea from the head of Geelvink Bay eastward to the Mambare River, extending along the slopes of the Nassau Range (south New Guinea) to the upper Uta-kwa River; Jobi, Vulcan Island, Tarawai, and other islands off the coast of north New Guinea.

There is no variation of color within this extensive range. Stresemann (1923, Arch. f. Naturgesch., 89A, 8 Heft, pp. 90, 91) admits 3 races within this range, *affinis* with a wing of 200-202, *decollatus* with a wing of 208-224, and *huonensis* with a wing of 226-235. The above quoted measurements prove that *decollatus* cannot be separated from *affinis* and also that the size difference between *huonensis* and *affinis* is so small that it seems unwise to recognize *huonensis*. The series of birds from the Mambare River is distinguished by particularly strong feet and claws.

Megapodius freycinet, subspecies

RANGE.—Dampier (Karkar) Island.

Off the coast of north New Guinea we find a series of three islands which connect in many ways the bird fauna of New Guinea and New Britain: Vulcan Island, Dampier Island, and Long Island. These three islands prove to be of the utmost importance in the study of the

genus *Megapodius*. The westernmost island (Vulcan Is.) has a pure population of *affinis*, the easternmost island (Long Is.) has an almost pure population of *eremita*, and the intermediate island has a hybrid population.

There are 4 ♂ and 2 ♀ of *Megapodius* from Dampier Island in the Rothschild Collection. One of the males is almost indistinguishable from *eremita* and one of the females from *affinis*, the other four birds show a mosaic of the characters of the two "parent" races. This is best illustrated in a table in which the birds are arranged in the sequence of their similarity to *affinis* and *eremita*.

The Dampier series shows strong sexual dimorphism of coloration, while sexual dimorphism is very slight or quite absent in pure races of *Megapodius freycinet*. It is very curious that the females of this hybrid population are much closer to *affinis* and the males to *eremita*.

CHARACTERS OF HYBRID POPULATION ON DAMPIER ISLAND AND OF PARENT RACES

SPECIMEN	SEX	WING	CREST	FORE- HEAD	BROWN ON FLANKS	MANTLE	WING
<i>affinis</i>	♂ ♀	..	long	feathered	very much	bright olive- brown	no gray
Dampier No. 134	♀	202	medium	feathered	very much	duller and more rufous	no gray
Dampier No. 135	♀	220	short	bare	much	very light olive-brown	no gray
Dampier No. 131	♂	228	long	feathered	much	duller	no gray
Dampier No. 133	♂	205	short	feathered	very little	darker and more olive- green	little gray
Dampier No. 130	♂	220	medium	partly bare	practically none	darker and more olive- green	little gray
Dampier No. 132	♂	218	short	almost bare	very little	very dark and olivaceous	little gray
<i>eremita</i>	♂ ♀	..	very short	bare	none	dark and oli- vaceous	much gray

Megapodius freycinet eremita Hartlaub

Megapodius eremita HARTLAUB, 1867, Proc. Zool. Soc. London, p. 830.—Echiquier Islands (= Ninigo Islands).

Megapodius Brenchleyi G. R. GRAY, 1870, Ann. Mag. Nat. Hist., (4) V, p. 328.—Gulf (= Ugi) Island, Solomon Islands.

Megapodius Hueskeri CABANIS AND REICHENOW, 1876, Journ. f. Ornith., p. 326.—New Hanover.

Megapodius rubrifrons SCLATER, 1877, Proc. Zool. Soc. London, p. 556.—Admiralty Island.

A small and very dark race; under parts of a very dark slate gray; flanks dark gray with or without a slight olive-brown tinge; crest very short, sometimes hardly noticeable; hind-neck dark gray; back very dark olive-brown; wing with a considerable amount of gray; tail brownish black; legs and feet dusky olive-green turning blackish in the dried skin; forehead bright red, completely bare; sides of face and throat sparsely feathered.

RANGE.—Entire northern Melanesia from the Ninigo Islands in the west to Long and Rook Island in the south and to the easternmost Solomon Islands in the east.

I have examined more than 200 adult birds and several score juvenals from this range and have come to the conclusion that it is impossible to recognize any races. If only a series from the Ninigo Islands is compared with a series from the mountains of San Cristobal, Solomon Islands, they are about as different as any two subspecies are in this genus. But not far from San Cristobal on the smaller islands of the Solomons we find populations which cannot at all be separated from Ninigo birds.

Four adult specimens from San Cristobal are not only very much larger than typical Ninigo birds (wing, ♂ 226, 238, 240, 244, against ♂ 201–219) but differ also in coloration. The gray of neck and under parts, and the brown back and wings are much lighter. The brown of the upper parts is more rufous, less olivaceous, the wing has usually less gray, and the throat is more densely feathered. Crest and crown are bright brown and differ conspicuously from the rest of the head.

Birds from the neighboring small island of Santa Anna are still more rufous on the upper parts and particularly on the wings. They are very small (♂, wing 215, 217, 221, 224). Since birds from Ugi Island, the type locality of *brenchleyi*, from where we have no material, usually agree with Santa Anna birds, we may assume that the just given characters probably also apply to Ugi birds.

Birds from most of the other islands of the Solomon group, particularly those from the larger islands, like Guadalcanar, Ysabel, Choiseul, Bougainville, and the New Georgia group are intermediate, but closer to

the *brenchleyi* type. Birds from some of the smaller islands, like Nissan and Ramos are closer to the *eremita* type, and birds from Gower Island and from Ongtong Java cannot with certainty be separated from the Ninigo series. Birds from Manus, Admiralty Islands, are quite indistinguishable from Ninigo birds, and birds from New Britain and the other islands of the Bismarck group, though equally dark, are slightly more brownish, less olivaceous above.

Of six birds from Rook Island, the four males are dark and dull, agreeing rather closely with Ninigo specimens. The two females are brighter showing a certain tendency toward *affinis*. The under parts of both birds are as in *eremita*. One of the males and one of the females have the forehead slightly more feathered than other specimens of *eremita*. This indicates that there is some *affinis* blood in the Rook Island population.

Not only on Rook Island, but practically all over the range of *eremita*, a certain amount of sexual dimorphism is apparent. Males are not only larger, but also darker and more olivaceous on the mantle. Females are brighter and more brownish.

The size variation can be summarized about as follows: The largest population occurs in the mountains of San Cristobal and probably in the mountains of the other large islands of the Solomon Islands. Fairly large-sized populations occur in the lowlands of the large islands, while the small islands have populations of small size, the smallest occurring in the most isolated coral islands.

In view of the considerable individual variation and in view of the irregularity of geographical variation, it seems better not to recognize *brenchleyi* but to call all the birds of northern Melanesia *eremita*. If *brenchleyi* were recognized, its range would include only the larger islands of the Solomons and even there it would comprise very unequal populations.

Megapodius f. forsteni appears to be exceedingly similar to *eremita*. It differs only by averaging lighter, by having more rufous brown on abdomen and flanks, and by having the bare forehead black instead of reddish.

The variation of size of the various populations included under *eremita* will be illustrated by the following table of measurements.

Measurements of *M. f. eremita*

All obviously immature birds have been excluded from this tabulation.

NINIGO ISLANDS.—Wing, ♂ 201, 206, 209, 210, 212, 213, 215, 216, 217, 219, 219, ♀ 198, 204, 205, 205, 206, 208, 214, 214; tarsus, ♂ 56–63 (59.0), ♀ 54–62; claw, 19–22.

ADMIRALTY ISLANDS.—Wing, ♂ 208, 213, 214, 215, 215, 217, 218, 219, 221, 222, 222, ♀ 210, 211, 213; tarsus, ♂ 57–65 (60.5), ♀ 58, 59, 60.

RAMBUTYO, ADMIRALTY IS.—Wing, ♂ 205, 216, 220, ♀ 202.

WITU ISLANDS.—Wing, ♂ 214, ♀ 214, 215, 221.

SQUALLY ISLAND.—Wing, ♂ 229; tarsus, 67.

NEW HANOVER.—Wing, ♂ 217, 235, ♀ 220, 223; tarsus, ♂ 64, 70, ♀ 58, 64.

NEW IRELAND.—Wing, ♂ 217, 221, 225, 229, 233, 234, ♀ 224; tarsus, ♂ 63–68 (66.0).

NEW BRITAIN.—Wing, ♂ 212, 212, 213, 216, 216, 219, 219, 220, 221, 223, 225, 227, 228, 235, ♀ 212, 214, 216, 218; tarsus, ♂ 59–68, ♀ 58–65; claw, ♂ 20–23.

ROOK ISLAND.—Wing, ♂ 210, 211, ♀ 218; tarsus, ♂ 61–64 (62.5), ♀ 60, (63.5).

LONG ISLAND.—Wing, ♂ 218, 222, 224, 226, 230, ♀ 215, 218, 221, 221, 226; tarsus, ♂ 65–69 (66.6), ♀ 55–61 (59.0).

TABAR ISLAND.—Wing, ♂ 214, 230; tarsus, 62, 63; claw, 21.

TANGA ISLAND.—Wing, ♂ 223; tarsus, 62, claw, 22.

LIHIR ISLANDS.—Wing, ♂ 213, 213, 217, 218, 218, 219, 225, 231, ♀ 217, 224, 226; tarsus, ♂ 65–67 (66.0), ♀ 60, 61, 61; claw, ♂ 20.5–23, ♀ 22–23.

FENI ISLAND.—Wing, ♂ 216, 216, 218, ♀ 222, 229; tarsus, ♂ 58–63, ♀ 56–62.

NISSAN.—Wing, ♂ 217, 218, 221, 222, 223, 223, 224, 226, 229, 229; tarsus, ♂ 63–66 (64.8), claw, 21–23.

SMALLER ISLANDS OF THE SOLOMON ISLANDS.—Oema Island (near Bougainville), wing, ♂ 233; tarsus, 72; Poharan Is. (near Bougainville), wing, ♂ 235; Whitney, Island (near Shortland), ♀, wing, 211, 214, tarsus, 60, 61; Gower Island, wing, ♂ 210, 220, ♀ 208, tarsus, ♂ 63, 66, ♀ 59; Ramos Is., wing, ♂ 217, 218, 218, ♀ 217; tarsus, ♂ 67, 68, 70, ♀ 63; Beagle Island (near Guadalcanar) wing, ♂ 228, ♀ 218, tarsus, ♂ 70, ♀ 64; Komanchu Island, ♀, wing, 217, 231, tarsus, 64, 66; Santa Anna, wing, ♂ 215, 217, 221, 224, tarsus, 66, 68, 69, 69; Pavuvu group, wing, ♂ 219, 220, 233, ♀ 216, 223; Shortland Is., wing, ♂ 220; Fauro, ♀ wing, 222, tarsus 65; Savo, wing, ♂ 220, ♀ 220, 232.

LARGER ISLANDS OF THE SOLOMON ISLANDS.—Bougainville, wing ♂ 217, 223, 224, ♀ 214, 217, 225, tarsus, ♂ 62, 64, 67, ♀ 60, 63, 63; Choiseul, ♂ 221, 228, 233; Ysabel group, wing, ♂ 222, 225, 227, 228, 229, ♀ 206, 218, 221, 226, 230, 231, 231, 233; Central group (Vella Lavella, Ganonga, Narova, Rendova, Kulambangra, etc.) ♂ 207, 210, 217, 222, 223, 225, 228, 231, 237, ♀ 200, 206, 216, 217, 222, 223, 223 (the smallest of these birds are probably not fully adult); Guadalcanar, ♀ wing, 214, 220, 222, 227, tarsus, 64, 64, 64; San Cristobal, wing, ♂ 226, 238, 240, ♀ 244, tarsus, ♂ 67, 68, 70, ♀ 77.

Weights (San Cristobal), ♂ 700, 750, 750, ♀ 925 gr.

All wing measurements are those of the primaries, although the secondaries sometimes appear longer. The measurements of the tarsus are sometimes approximations. It is not always possible to get exact tarsus measurements.

The systematic status of *Megapodius freycinet layardi* Tristram (New

Hebrides), of *M. f. geelvinkianus* Meyer (Biak, Numfor, and Miosnom), of *M. f. forsteni* Gray (southern Moluccas, except Buru) and of *M. f. buruensis* Stresemann (Buru) is clear and requires no further discussion. Salvadori ('Orn. Pap. Mol.,' III, p. 234) describes the variation in size of *M. f. freycinet*. I have not seen enough additional material to add anything to his analysis.

There are five principal characters that help to distinguish the various races of *Megapodius freycinet*, the color of back, wings, and feet, the feathering of the forehead and the length of the crest. It is interesting to see that these characters are not closely linked. The following table illustrates the variation of these characters in the more important races of *freycinet*. Such a tabulation will be helpful to the student of speciation.

VARIATION OF CHARACTERS IN SOME RACES OF *Megapodius freycinet*

	FEET	FOREHEAD	BACK	WING- BEND	CREST
<i>reinwardt</i>	red	feathered	light rufous olive	without gray	long
<i>tumulus</i>	red	feathered	dark olive	without gray	long
<i>affinis</i>	blackish olive	feathered	light brown	without gray	long
<i>macgillivrayi</i>	red	partly bare	brownish olive	with gray	medium
<i>forsteni</i>	blackish olive	feathered	brownish	with race of gray	short
<i>eremita</i>	blackish olive	bare	dark brownish olive	gray	short
<i>geelvinkiana</i>	partly red	feathered	blackish with little brown	gray	short
<i>freycinet</i>	blackish	feathered	blackish gray	gray	short

TALEGALLA LESSON

The three species of this genus, in its modern restricted sense, are so similar that such an able ornithologist as Schlegel in 1880 considered one (*fuscirostris*) a synonym of *cuvieri* and the other (*jobiensis*) a subspecies. It is now known that these species differ much more than was realized in those days (see Ogilvie-Grant, 1915, Ibis, Suppl., pp. 322-324). Furthermore, the ranges of all three overlap without any evidence of mixing or intergrading.

The westernmost species, *cuvieri*, has no subspecies; the two more

eastern species show a slight geographical variation of size which necessitates the description of a new race.¹

***Talegalla fuscirostris occidentis* White**

Talegalla fuscirostris occidentis WHITE, 1938 (October), Ibis, p. 73.—Setekwa River, Dutch New Guinea.

Similar to *fuscirostris*, but smaller in all measurements.

T. f. fuscirostris.—Wing, ♂ 280,² 282, 285, 290, 292; ♀ 268, 272, 275, 275, 278, 280, 283; tail, ♂ 169, 177, 179, 186; ♀ 168, 171, 172, 174, 177.

T. f. occidentis.—Wing, ♂ 259, 264, 265, 266, 268, 270, 271, 272; ♀ 263, 264, 274; tail, ♂ 142, 146, 147, 152, 152, 160, 160; ♀ 145, 146.

RANGE.—Aru Islands and southwest New Guinea, from the head of Geelvink Bay (presumably belonging to this race) and the Mimika River eastward at least to the Oriomo River.

It has been known for almost 60 years that these birds are smaller than typical *fuscirostris*. Salvadori points it out for Aru Island birds in his immortal 'Orn. Pap. Mol.' III (1882), p. 248, and Ogilvie-Grant records an equally small size for birds from the foot of the Snow Mts. (Ibis, Suppl., 1915, p. 324). I have measured more extensive material than either of these authors had available and found the differences fully confirmed. In regard to the tail measurements there is no overlap between the two forms, and the slight overlap in the wing measurements of the females may be due to faulty sexing.

***Talegalla jobiensis longicauda* A. B. Meyer**

It has been questioned by several authors, whether this form was separable from typical *jobiensis*. It may be worthwhile to publish some measurements which demonstrate conclusively the larger size of *longicauda*. There is no difference in coloration.

T. j. jobiensis.—Wing, ♂ 261, 267, 271, 274, 281, 282, 285, ♀ 257, 272, 275, 276, 286; unsexed 261, 266, 279, 280, 286, 291.

Tail, ♂ 154, 155, 157, 157, 160, 167, ♀ 146, 150, 152, 152, 159, 161; unsexed 147, 158, 163, 163, 168, 169.

T. j. longicauda.—Wing, ♂ 281, 282, 285, 285, 292, 296, 302, 302, ♀ 280, 288, 292; unsexed 290, 294, 298.

Tail, ♂ 175, 177, 181, 184, 185, 185, 192, 204, ♀ 164, 174, 188; unsexed 171, 171, 186.

RANGE.—Southeast New Guinea, westward in the north to the Sepik River, in the south to the Aroa River.

¹ This race was described by Mr. C. M. N. White while the present paper was in press and I have substituted his name. Nevertheless, it seems worthwhile to record the measurements of the specimens in the American Museum collections.

² Figures in italics from Salvadori (1882) and Ogilvie-Grant (1915).